DH-TPC-PT8421C

Thermal Network Hybrid PTZ Camera

- 400x300 VOx uncooled thermal sensor technology
- Athermalized lens(thermal), focus-free
- 2 Megapixel progressive scan CMOS
- Powerful optical zoom lens(thermal&visible)
- Support fire detection & alarm
- Max 30°/s pan speed, 360° endless pan rotation
- Up to 300 presets, 5 auto scan, 8 tour, 5 pattern
- 2/1 alarm in/out
- Micro SD memory, IP66

System Overview

Featuring a dual lens Pan/Tilt/Zoom (PTZ) camera, this series provides an all-in-one solution that is especially beneficial for long distance video surveillance in outdoor applications. Together with Dahua Thermal and Starlight technology, the camera's long range capabilities are able to be utilized even at night. The series combines one thermal camera for monitoring in total darkness and one camera with Starlight functionality and a motorized lens for confirming details up close.

Functions

Uncooled Vox Technology
Dahua thermal cameras use uncooled Vox sensor technology. Their small size and better performance make them a cost-effective solution for thermal security.

High Sensitivity
High thermal sensitivity (<40mK) allows cameras to capture more image details and temperature difference information.

Fire Detection & Alarm
With built-in fire detection functionality, the camera has the ability to detect fires from long range. Because thermal cameras are sensitive to temperature, they provide higher fire detection accuracy than standard cameras, making them particularly fit for applications such as forest fire prevention.

Intelligent Video System (IVS)
IVS is a built-in video analytics algorithm that delivers intelligent functions to monitor a scene for tripwire violations, intrusion detection, and abandoned or missing objects. A camera with IVS quickly and accurately responds to monitoring events in a specific area.

Environmental
With a temperature range of-40 °C to +70 °C, the camera is designed for extreme temperature environments. Subjected and certified to rigorous dust and water immersion tests, the IP66 rating makes it suitable for demanding outdoor applications. For enviorments with rain, sleet, snow and fog, an integrated wiper(optional) provides users with clear visibility at all times.

Protection
The camera Supporting wide range voltage input(100–300V AC), suitable for the most unstable conditions for outdoor applications. Its 6 kV lightning rating provides effective protection for both the camera and its structure against lightning.

Technical Specification

General

Structure	Multi-sensor PTZ camera

Thermal

Detector Type	Vanadium oxide uncooled focal plane detector
Effective Pixels	400x300
Pixel Pitch	17μm
Spectral Range	8μm–14μm
Thermal Sensitivity (NETD)	≤40mK
Focal Length	100mm; 20mm–100mm; 30mm–150mm; 38mm–190mm
Field of View	100mm: horizontal: 3.9°; vertical: 2.9° 20mm–100mm: horizontal: 19.3°–3.9°; vertical: 14.5°–2.9° 30mm–150mm: horizontal: 12.9°–2.6°; vertical: 9.7°–1.9° 38mm–190mm: horizontal: 10.2°–2.1°; vertical: 7.7°–1.5°
Focus Mode	Auto; manual
Aperture	100mm: F1.0 20mm–100mm: F1.0 30mm–150mm: F1.2 38mm–190mm: F1.2
Detection Distance	100mm: vehicle: 7843m (2574ft); human: 2941m (9649ft) 20mm–100mm: vehicle: 7843m (2574ft); human: 2941m (9649ft) 30mm–150mm: vehicle: 11765m (38599ft); human: 4412m (14475ft) 38mm–190mm: vehicle: 14902m (2552ft); human: 5588m (18333ft)
Recognition Distance	100mm: vehicle: 1961m (6434ft); human: 756m (2480ft) 20mm–100mm: vehicle: 1961m (6434ft); human: 756m (2480ft) 30mm–150mm: vehicle: 2941m (9649ft); human: 1134m (14475ft) 38mm–190mm: vehicle: 3725m (12221ft); human: 1437m (4715ft)
Identification Distance	100mm: vehicle: 980m (3215ft); human: 378m (1240ft) 20mm–100mm: vehicle: 980m (3215ft); human: 378m (1240ft) 30mm–150mm: vehicle: 1471m (4826ft); human: 567m (1860ft) 38mm–190mm: vehicle: 1863m (6112ft); human: 718m (2356ft)
Digital Detail Enhancement (DDE)	Yes
AGC	Auto; manual
Noise Reduction	2D NR; 3D NR
Color Palettes	18 color modes selectable such as Whitehot/Blackhot/Ironrow/Icefire.

Visible

Image Sensor	6.6mm-330mm: 1/2.8 inch CMOS 21mm-500mm: 1/1.9 inch CMOS 12.5mm-750mm: 1/1.9 inch CMOS 16.7mm-1000mm: 1/1.9 inch CMOS
Effective Pixels	1920x1080
Max. Resolution	2MP
Horizontal Definition	≥1100TVL
Min. Illumination	6.6mm–330mm: color: 0.016Lux@F1.5; black & white: 0.0175Lux@F1.5 21mm–500mm; 12.5mm–750mm; 16.7mm–1000mm: color: 0.002Lux @ (F1.5, AGC ON); black & white: 0.0005Lux @(F1.5, AGC ON)
AGC	Auto; manual
Noise Reduction	2D NR; 3D NR
S/N Ratio	>55dB
White Balance	Auto/manual/indoor/outdoor/tracking/outdoor auto/sodium lamp auto/sodium lamp
Electronic Defog	Yes
Electronic Image Stabilization (EIS)	6.6mm–330mm: Optical Image Stabilization(OIS) 21mm–500mm: Yes 12.5mm–750mm: Yes 16.7mm–1000mm: Yes
Optical Defog	6.6mm–330mm: Yes 21mm–500mm: None 12.5mm–750mm: Yes 16.7mm–1000mm: Yes
Electronic Shutter Speed	1/1s–1/100000s (auto or manual)
BLC	Yes
WDR	Yes
HLC	Yes
Digital Zoom	6.6mm–330mm: 16× 21mm–500mm: None 12.5mm–750mm: None 16.7mm–1000mm: None
Day/Night	Auto (ICR); color/B/W
Focus Mode	Auto; semi-auto; manual
Focal Length	6.6mm–330mm (thermal lens: 100mm); 21mm-500mm (thermal lens: 20mm–100mm); 12.5mm-750mm (thermal lens: 30mm–150mm); 16.7mm-1000mm (thermal lens: 38mm–190mm)
Field of View	6.6mm–330mm: horizontal: 42.34°–1.10°; vertical: 24.68°-0.62° 21mm-500mm: horizontal: 23.5°–1.0°; vertical: 17.6°–0.8° 12.5mm-750mm: horizontal: 31.29°–0.32°; vertical: 19.36°–0.20° 16.7mm-1000mm: horizontal: 20.51°–0.22°; vertical: 15.54°–0.17°
Close Focus Distance	6.6mm–330mm: 1.2m 21mm-500mm: 1m–10m 12.5mm-750mm: 1m–10m 16.7mm-1000mm: 1m–10m
Optical Zoom	6.6mm–330mm: 50× 21mm–500mm: 24× 12.5mm–750mm: 60× 16.7mm–1000mm: 60×
Aperture	6.6mm–330mm: F1.8–F6.5 21mm-500mm: F3.9 12.5mm-750mm: F3.6 16.7mm-1000mm: F3.5

Laser Illumination

Power	10W
Wave Length	808±5nm
Working Distance	≥1000m (≥3280.84ft)
Angle	1°–30° adjustable
Zoom Speed	< 4s (Wide–Tele)

Brightness Adjustment	Auto; manual

Audio and Video

Video Compression	H.265; H.264M; H.264H; H.264B; MJEPG
Resolution	Thermal: Main stream (1280×1024, 1280×960, 1280×720, 400×300) (1280×960 by default); sub stream (640×512, 640×480, 400×300) (400×300 by default) Visible: Main stream (1920×1080, 1280×720, 704×576) (1920×1080 by default); sub stream (704×576, 352×288) (704×576 by default)
Video Frame Rate	Thermal: 50Hz: Main stream (1280×1024@25fps/1280×960@25fps/1280×720@25fps/400x300@25fps), sub stream (640×512@25fps/640×480@25fps/400x300@25fps) 60Hz: Main stream (1280×1024@30fps/1280×960@30fps/1280×720@30fps/400x300@30fps), sub stream (640×512@30fps/640×480@30fps/400x300@30fps) Visible: 50Hz: Main stream (1920×1080@25fps/1280×720@25fps/704×576@25fps), sub stream (704×576@25fps/352×288@25fps) 60Hz: Main stream (1920×1080@30fps/1280×720@30fps/704×480@30fps), sub stream (704×480@30fps/352×240@30fps)
Audio Compression	G.711a; G.711mu;PCM
Image Encoding Format	JPEG

PTZ

Pan/Tilt Range	Pan: 0°–360° endless;
Manual Control Speed	Pan: 0.01°–30°/s; Tilt: 0.01°–12°/s
Preset Speed	Pan: 0.01°–30°/s; Tilt: 0.01°–12°/s
Preset	300
PTZ Mode	5 Auto Scan, 8 Tour, 5 Pattern, Auto Pan
Speed Setup	Human-oriented focal length/ speed adaptation
Power Up Action	Auto restore to previous PTZ and lens status after power failure
Idle Motion	Activate Preset/ Scan/ Tour/ Pattern if there is no command in the specified period
Protocol	DH-SD, Pelco-P/D (Auto recognition)

General Function

Two-way Talk	Yes
Network Protocol	HTTP; TCP; ARP; RTSP; RTP; UDP; RTCP; SMTP; FTP; DHCP; DNS; DDNS; PPPOE; IPv4/v6; SNMP; QoS; UPnP; NTP
Region of Interest (ROI)	Yes
Edge Storage	FTP; Micro SD card (256G, hot plug)
Interoperability	ONVIF; GB/T28181; CGI; PSIA; Dahua SDK
Browser	IE: IE8 and the later, and explorer with IE core Google: 42 and the earlier Firefox: 42 and the earlier Safari: 10 and the earlier
User/Host	20 channels at most (the total bandwidth 64M)
Security	Authorized username and password; attached MAC address; encrypted HTTPS; IEEE 802.1x; controlled network access
User Management	Support 20 users at most and users are classified as two groups--administrator group and user group.
Malfunction Detection	Network disconnection; IP addresses conflict; SD card error (status or storage space);

Smart Event

General IVS Analytics	Tripwire/intrusion

Professional and Intelligent

Fire Detection	Yes
Cold/Hot Spot Trace	Auto tracking of the hottest spot and the coldest spot in the thermal image
Auto Tracking	Yes

Port

Network	1 10M/100M Ethernet port (RJ-45)
Alarm Input	2 channels
Alarm Output	1 channels
Audio Input	1 channel
Audio Output	1 channel
RS-485	1 channel

Power

Power Supply	100–300V AC and power adapter provided
Power Consumption	<100W (normal power consumption) <260W (with heater on) (maximum power consumption)

Environment

Operating Temperature	-40°C to +70°C (-40°F to 158°F)
Operating Humidity	≤95%
Self-Adaptive	Auto heating to protect the chip under the cold environment

Physical Characteristics

Protection Grade	IP66, anti-surge 6KV, anti-elctrostatic 8KV (touched by objects), anti-elctrostatic 15KV (air)
Dimensions	655mmx515mmx617mm (25.78"x20.28"x24.29")
Packaging Dimensions	883mmx685mmx898mm (34.76"x26.97"x35.35")
Net Weight	≤75kg (≤165.35lb)
Gross Weight	≤85kg (≤187.39lb)
Power Adaptor	Contained
Lens	Contained

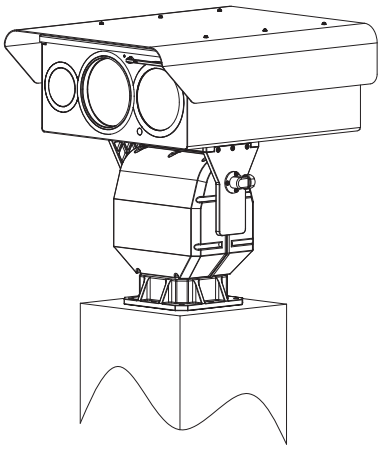
Certification

Certifications	CE (EN 60950:2000); FCC (FCC Part 15 SubpartB)

Ordering Information

Type	Part Number	Description
DH-TPC-PT8421C	DH-TPC-PT8421CP/N-BM100ZD310BL	Thermal: 400x300 100mm lens Visible: 2MP 6.6-330mm lens
	DH-TPC-PT8421CP/N-B20100ZC510BL	Thermal: 400x300 20-100mm lens Visible: 2MP 21-500mm lens
	DH-TPC-PT8421CP/N-B30150ZF711BL	Thermal: 400x300 30-150mm lens Visible: 2MP 12.5-750mm lens
	DH-TPC-PT8421CP/N-B38190ZF1011BL	Thermal: 400x300 38-190mm lens Visible: 2MP 16.7-1000mm lens

Installation Diagram



Dimensions (mm[inch])